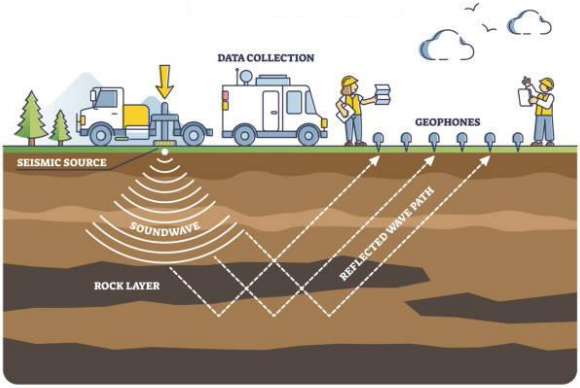
OGDCL

SAFETY HANDBOOK

For Oil & Gas Exploration Leases (Seismic Surveys)

JUNE 2022



This handbook is intended as reference only. It is not all encompassing. Ask your Location HSE Representative/ Coordinator for more detailed information. The specific HSE Management System procedures are available in the latest revision of OGDCL's Integrated HSE System Manual.

Occupational Health, Safety, Environment & QA/ QC Department

Policy Reference: AA0102-16 (HSEQ) Dated 19th February 2021 (Revised)

OIL AND GAS DEVELOPMENT COMPANY LIMITED

Occupational Health, Safety, and Environment

Policy Statement and Commitment

As a responsible oil and gas E&P company, we are committed to embrace Health, Safety and Environment (HSE) in all our activities. The emphasis on HSE management is crucial to our operational requirement and to maintain market repute. In carrying out our multidimensional activities, we also ensure welfare of indigenous communities, protection of ecosystems and environment. As we continue to avail exploration and production opportunities on a sound foundation of technical and financial prudence, we intend to:

- Exhibit visible leadership at each level and ensure necessary resources, trainings and infrastructure are in place for aiming HSE excellence.
- Identify hazards and ensure effective controls to manage operational risks.
- Ensure that our entities meet or exceed applicable HSE laws, regulations, standards and other requirements.
- Set objectives and targets to safeguard humans & assets, protect environment and conserve energy & natural resources.
- Ensure that Contingency Plans are in place for business continuity.
- Provide employees with self-assured methods & practices, authority to stop unsafe work & motivation through rewards and recognition.
- Employ contractors and service companies who aspire to the high HSE standards at all times, and recognize that HSE is everyone's responsibility.
- Improve HSE system by continually focusing on Leading Indicators and disseminating lessons learned from Lagging Indicators.
- Assess HSE KPIs regularly & share performance accordingly.

Through observance of this policy, we aim to assist in protecting the environment and the overall wellbeing of our stakeholders, specifically our employees, clients, shareholders, partners, contractors, subcontractors, service companies and communities.

Managing Director / CEO

Important

Following safety precautionary guidelines will be strictly enforced to ensure the safety of our people at all Locations and our communities. Everyone who works for or on behalf of OGDCL is responsible for his/ her own safety and the safety of those around. However, Senior Management is accountable for timely communicating, training, implementing, and devising system of auditing for these guidelines to assure continuity in the compliance and performance.

- **Work (both routine and non-routine) will not be conducted without a pre-job risk assessment and a safety discussion (formal meeting/ toolbox talk) appropriate for the level of risk.**
- **All authorized persons will be trained and competent in the work they conduct.**
- **Personal protection equipment will be worn as per risk assessment and minimum site requirements.**
- **Emergency response plans, developed through a review of potential emergency scenarios, will be in place before commencement of work.**
- **Everyone has an obligation to STOP work that is unsafe.** *(TOP HSE Cards are available on every prominent area along with the Drop Boxes)*

- **Location InCharge, Section InCharges, Shift InCharges and Supervisors to ensure that all workforce members have been communicated the substance of this Safety Handbook.**

- **Every Workforce Member to a) comply with the precautionary guidelines in this Safety Handbook; b) work safely and to promote positive safety culture; c) attend & participate in scheduled safety meetings; d) report all hazards, unsafe work behaviors and conditions to the Location InCharge and HSE & e) timely report accidents & nonconformities to the Location InCharge and HSE Representative.**

Outline of OGDCL's HSE Management System

Preamble OGM/P-HSE-1.1	Terms & Definitions OGM/P-HSE-2.1	Context OGM/P-HSE-3.1	Plan			Do	Check	Act
			HSE Framework's Core Element					
			First Leadership	Second Planning	Third Support	Fourth Operation	Fifth Performance Evaluation	Sixth Improvement
			HSE & RM Policy Statements OGM/P-HSE-4.1	Risk Management OGM/P-HSE-5.1	Competence & Awareness OGM/P-HSE-6.1	Operational Planning and Control OGM/P-HSE-7.1	UBUC (Hazards) Identification & Reporting OGM/P-HSE-8.1	Opportunities For Continual Improvement OGM/P-HSE-9.1
			Lifesaving Golden Rules OGM/P-HSE-4.2	Job Vulnerability /Hazard Analysis OGM/P-HSE-5.2	Communication & Consultation OGM/P-HSE-6.2	Permit to Work System OGM/P-HSE-7.2	Monitoring, Measurement & Compliance Evaluation OGM/P-HSE-8.2	Management of Change OGM/P-HSE-9.2
			Roles, Responsibilities Accountabilities and Authorities OGM/P-HSE-4.3	Legal & Other Requirements OGM/P-HSE-5.3	Documented Information OGM/P-HSE-6.3	Handling, Segregation and Disposal of Waste OGM/P-HSE-7.3	Analysis of Data OGM/P-HSE-8.3	Incident Investigation OGM/P-HSE-9.3
			Crisis Management OGM/P-HSE-4.4	Objectives & Management Program OGM/P-HSE-5.4	Control of Records OGM/P-HSE-6.4	Journey Management OGM/P-HSE-7.4	Reward, Recognition & Penalties OGM/P-HSE-8.4	
			Structure OGM/P-HSE-4.5			Hydrogen Sulfide Management Framework OGM/P-HSE-7.5	Internal Audits OGM/P-HSE-8.5	
						Management of Project Contractors & Service Companies OGM/P-HSE-7.6	Management Reviews OGM/P-HSE-8.6	
						Use of Personal Protective Equipment OGM/P-HSE-7.7		
						Framework for Site Restoration OGM/P-HSE-7.8		

Basic Safety Rules

Stop Unsafe Work

- Immediately STOP any unsafe work that has the potential to injure personnel, damage equipment, or harm the environment.

Report Incidents

- Immediately report all work related injuries/illnesses, no matter how minor, to your supervisor.
- Immediately report all fires, spills, or releases, no matter how small, to your supervisor.
- Immediately report any unsafe condition, unsafe act, near hit, or vehicle collision to your supervisor.

Follow Safe Practices

- Comply at all times with all safe driving requirements, particularly speed limits, when operating a vehicle.
- Ensure that all persons in vehicles wear seat belts at all times.
- Erect barricades and flagging around hazardous work areas, such as holes in decking and floor surfaces, trenches, road crossings, and overhead hazardous work.
- Use only proper tools and equipment maintained (pre-inspected) in a safe working condition. Do not use homemade, modified, or damaged tools.
- Maintain good housekeeping in your work area at all times.
- Rest and dine (eat/ drink) only in designated areas.
- Use proper manual lifting techniques, or obtain assistance or mechanical lifting aids when lifting heavy loads.
- Inspect all fire extinguishers and other emergency equipment and keep them clear of any obstructions.

- Properly label (in indigenous language as well) and store all chemicals or hazardous material containers. Where specified, store drums in secondary containment areas or on drum containment pellets.

Avoid Unsafe Activities

- Do not climb or stand on equipment, piping, valves, or unstable surfaces (e.g., chairs or barrels) to perform work.
- Do not wear finger rings, wristwatches, jewelry, loose clothing, unsecured long hair, or loose accessories within an arm's reach of rotating equipment or electrical switchgear.
- Do not apply compressed industrial gases to yourself or others.
- Do not operate equipment having a "DANGER, DO NOT OPERATE" (hold) tag.
- Do not start work in any area, or on any equipment, without consent of the supervisor.
- Do not use electronic devices (e.g., mobile phones, smart watches, and instruments) that are not listed as safe for use in classified locations without proper approval.
- Do not engage in horseplay or fighting.
- Do not run in work areas.

Protect Yourself

- Wear approved hard hats, safety eyewear with side shields, and safety footwear in all restricted areas, project sites, and in areas where specifically designated.
- Use approved additional hazard-specific personal protective equipment (PPE), including goggles, face-shield, respiratory protection equipment, and body/hand protection where specific hazards requiring their use have been identified.

- Wear adequate PPE prescribed by the chemical hazard bulletin (CHB) or material safety data sheet (MSDS) when handling chemicals or hazardous materials.
- Use approved hearing protection in designated high noise areas.
- Use proper hand protection (e.g., gloves) when performing tasks that may present a hand injury risk.

LIST OF CONTENTS

GUIDELINES

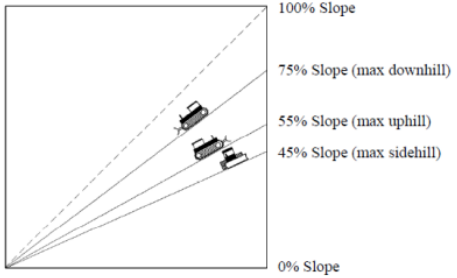
ANNEXURES

GUIDELINE 01
SURVEYING AND DOZING OPERATIONS

Surveying crew is frequently the first member of the party to enter a location. They shall warn other crew members of dangers such as animals, insects (bees), underground gas or electric lines, electric fences, hunters in the area wells, mines or partially concealed holes or pits, weak bridges, and access.

- The Survey Section shall prepare a sketch map for distribution to all crew members, showing the location of all points of danger, including but not limited to:
  - Power, gas, water and telephone lines.
  - Radio, Television and Radar transmitters.
  - Weak bridges.
  - Fences.
  - Animals and insects (such as bees), etc.
- Traffic control is necessary to provide maximum warnings to prevent accidents, and promote a safe, continuous flow of traffic.
- Warning lights, flags, and signs are required when working along the road.
- Vehicle warnings shall be clearly visible from all directions. Each vehicle shall also have all lights and four-way flashers operating.
- Vehicle shall also display red flags and or slow moving signs.
- Flagmen and all members of crew working on the operations shall wear bright safety vests and hard hats to enhance their visibility, and distinguish them from other road users.
- When one lane of a public road way is blocked, flagmen shall be posted in order to direct traffic around the obstructing equipment. The flagmen shall be equipped with two-way radios and with STOP and GO signs.

- When operating on any public road, warning signs shall be placed and maintained in both directions from the work area.
- In hilly areas, the dozing operations should be supervised to ensure that the survey track is safe & secure enough for the movement of the heavy vehicles to follow.
- After heavy rains/ floods, the affected/ damaged tracks should be re-dozed.
- Dozers should not be operated across slopes (sidehill) greater than 45 percent, uphill slopes greater than 55 percent or downhill on slopes greater than 75 percent (see Figure).



- Work must be performed slowly on slopes, by keeping the attachments low.
- Local communities should be informed before-hand about the intentions and mode of operations in their areas.
- Shot points to be placed as per approved parameters considering safe distances defined by regulations from the houses, tube wells, graveyards, or any other structure.

GUIDELINE 02
EXPLOSIVES STORAGE

- Storage of explosives shall comply with local government regulations. Storage sites shall be located at safe distances from buildings, factories and houses. The site shall have a good road access.
- Every consignment containing explosives must include original Material Safety Data Sheet (MSDS); If MSDS of any explosive is not included, the Location InCharge should immediately contact the Rep. of supplier, manufacturer or importer to get the MSDS (before final payments) and maintain record.
- MSDS of explosives must be readily accessible to all concerned workforce members in their work areas.
- HSE Rep. should impart trainings on the Explosives Safety using MSDS to elaborate its a) composition, b) physical & chemical risks & threats, c) associated hazards, such as fire & explosion, d) health hazards, such as sign of exposure, e) routes of exposure & exposure limits, f) precautions for safe handling, use & disposal, g) Emergency & first aid procedures and h) control measures.
- A suitable Lightening Arrestor must be installed on each magazine before storing the explosives.
- Smoking, matches, lights and spark producing devices such as sulfuric acids, petroleum shall not be allowed at any distance where explosives are stored and handled.
- The dynamite and detonators shall be kept/stored separately in the magazine.
- The ground of a magazine shall be grated so that water drains away from the magazine. Noncombustible and nonconductor materials shall be used in the Construction. Electrical installation within a magazine shall be avoided.
- Electrical installation and battery powered devices are strictly prohibited within a magazine premises.

- Magazine shall be well ventilated to prevent dampness or overheating of explosives. All tools and implements used in any part of the magazine shall be made only of wood, pure copper or pure brass.
- All doors especially where the explosives are placed shall open outwards.
- Magazine should be kept clean, dry, free of grit, paper, empty boxes and trashes, any flammable material, and obstructions. Wastes shall not be dumped in or near the magazine.
- All personnel shall be checked for ignition sources prior to entry into the magazine premises.
- Containers of explosive materials shall be stacked at least 300mm away from the walls so that the air can circulate freely.
- Boxed material shall be stacked in flat and top side up position, according to grades & specifications with clear visibility of labels and brands.
- Broken, defective or expired material shall be boxed & stored in a separate magazine and labeled in red color "WARNING: NOT SUITABLE FOR SEISMIC USE".
- Warning signs attached to magazine shall be labeled with letters no less than six (6) inches with the words "MAGAZINE, EXPLOSIVES, DANGEROUS" on all sides.
- "Never":
  - Allow guests or unknown persons in the magazine.
  - Open containers of explosives in side magazine.
  - Smoke in or allow smoking materials in a magazine.
  - Allow fire arms or cartridges in or near magazine.
  - Allow unauthorized access to magazine.
  - Allow cellular phones in the magazine.
- Magazine doors shall be kept locked except during placement or removal of explosives or during inspection.
- Magazine shall be provided with suitable and adequate firefighting equipment.

- Magazine complexes shall be surrounded by a wire fence of suitable structure.
- Update records immediately when removing or returning explosives to magazine and duplicate of this record shall be kept outside of the magazine in a safe place and also maintain a visitor book to record personnel arriving/departing the magazine.
- In case of theft of explosive proper reporting shall be done.
- Before making repairs to the interior of a magazine, all explosives shall be removed and the floor shall be cleaned.
- Particular attention shall be paid to the security of magazine.
- Party Chief shall maintain a current inventory of explosives on a daily basis with issue and return of explosives signed by each individual.

GUIDELINE 03
EXPLOSIVES HANDLING

- Use oldest stock of explosives first.
- Ensure equipment provided to handle is suitable and safe; any equipment which is not safe should be taken out of use.
- Do not use metal tools when handling and opening containers of explosives.
- Do not throw, slide or roughly handle explosives.
- Junk explosives shall be disposed of ONLY by trained competent personnel.
- Safe handling and storage shall be confirmed before shifting explosive in the working areas.
- Only the loaders and shooters shall handle and use explosives.
- Boxes shall be handled with utmost care and never dropped, slide or rubbed against floor.
- Avoid handling explosive in sickness, under use of drug which cause drowsiness, or any disabling drug like alcohol or narcotics.
- Static electricity occurs naturally in many ways and can set off explosives. Always do the following:
  - Always ground yourself before handling explosives.
  - Always wear natural fiber clothing
  - Use clean water for de-static yourself before handling explosive material.
  - Handle all explosives with utmost care to avoid dropping in water to cause water pollution.
  - Handle explosives with utmost care to prevent disaster to the environment.
  - Use recommended PPE.

GUIDELINE 04
EXPLOSIVES TRANSPORTATION

- The transportation of explosives shall be carried out in specially constructed and designated vehicles. (Never transport explosives in a public transport carrying passengers.)
- Ensure vehicle is safe for transportation of dynamite and detonators prior to loading explosive material.
- Driver of explosive vehicle shall be physically fit and valid license holder. The driver shall be familiar and conversant with the safety requirement and measures to be taken in any case of emergency (e.g. trained in firefighting and first aid).
- No passengers and irrelevant persons are allowed in vehicle used for explosive transportation, except the licensed shooting InCharge.
- Detonators shall not be transported with explosives. Separate vehicle shall be used for their transportation. Detonators shall be carried in appropriate containers.
- Vehicle used for explosive transportation shall have fully charged water type extinguishers in good condition. First aid kit and a tool kit shall be available in the vehicle. The driver shall be trained in firefighting and First Aid measures.
- The vehicle shall be visibly marked with warning signs such as "Danger Explosives" and "No Smoking" both front and near. Two red warning flags shall be placed on both sides in front. The vehicle shall be equipped with red revolving lights in front and rear.
- No dynamite and detonators shall be carried in the driver's cabin.
- No dynamite & detonators shall be kept/stored in the premises of camp site.
- Smoking shall be strictly prohibited when carrying explosives and while loading and un-loading.
- No dangerous, inflammable materials (matches,

fuel, flame, ignition producing devices) shall be carried in vehicles transporting explosives.

- No radio shall be fitted in the vehicles transporting explosives.
- Intoxicated persons are strictly prohibited near the vehicle carrying explosives.
- Radio-frequency (RF) transmitters, which include AM and FM radio, television, and radar, create powerful electromagnetic fields that decrease in intensity with distance from the transmitter antenna. There are also many military transmitters which have frequencies ranging from Kilohertz (kHz) to thousands of MegaHertz (MHz), often with large power outputs. Work shall be stopped and rescheduled in such cases.
- Under certain circumstances, electric detonator wires may pick up enough electric energy from such fields to cause them to explode. When transporting explosives in the vicinity of radio transmitters, the minimum distance should be according to the following standards:

POWER WATTS	MINIMUM DISTANCE	POWER WATTS	MINIMUM DISTANCE
0-50	75 m	1000-10000	750 m
50-250	150 m	10000-50000	1500 m
250-1000	300 m	50000-100000	2300 m

- Parking of vehicle in a position adjacent to or in proximity of overhead cables is not allowed. The route to and from the magazine & field location shall be planned in advance and the program passed to the drivers. Vehicles shall be parked at safe distance from sensitive areas. Maximum speed on roads shall be 60 KPH and on tracks shall be 30 KPH. The speed of vehicle shall not exceed the prescribed limits.
- Explosives during conveyance shall not be left

unattended day or night.

- Explosives shall not be transported during thunder storms, poor weather conditions or by night.
- The engine shall not be run during loading and un-loading of explosives as well as during petrol or diesel filling.
- The body of the vehicle including the floor shall be completely covered externally with sheet metal and lined internally with Asbestos or Wood treated to render it fire resistant or non-inflammable. There shall be no opening in the body of the vehicle except the door which shall be at the back. The interior of the vehicle shall be kept clean and in good condition.
- In case of an accident or break-down one man shall stand by the vehicle while the other shall inform the Police, Base Camp and Party Chief.
- In case of vehicle break-down, explosive shall be transferred to another vehicle under the supervision of a qualified professional.
- In case of fire in the driver's cabin, immediately apply Fire Extinguishers. Other measures as deemed necessary shall be taken depending upon the situation.
- If repair of explosive vehicle is required, explosive shall be shifted before handing it over to workshop.

GUIDELINE 05
SHOT HOLE LOADING

- Loading personnel shall be experienced and trained to handle explosives.
- Dynamite and detonators shall be carried separately in appropriate containers with a minimal safety distance of 25 meters between both.
- Detonators leads shall be sorted at all times.
- The loader shall ensure that dynamite and detonators are kept at a distance of 25 meters on either side of the shot point to be loaded and are guarded at all times.
- The loading supervisor shall clear the general area before beginning the loading operation. This includes crew personnel and third parties.
- Only the amount of explosives and detonators needed for the hole shall be taken out of the boxes. The boxes shall be locked immediately after the explosives and detonators have been removed.
- All explosive operations shall be suspended during thunder storms or poor weather conditions.
- The loader shall check the drilled hole face, diameter and recommended depth so that dynamite can be easily lowered into the hole, without pressing.
- Safe handling and storage shall be confirmed before shifting explosive in working area.
- Smoking, use of cell phone or any kind of electronics and fire to open flame at least 30 meters radius of use of explosive are strictly prohibited.
- Explosives other than charge being loaded shall be at safe distance from holes (at least about 30 meters).
- Avoid all activities near the loading holes except necessary work to load the charge.
- All persons near to holes shall be vigilant and able to hear, see and understand any warning orders.

- While loading pattern holes by different teams, the safety distance shall be ensured and vigilant supervision of the supervisors are required.
- Do not make charge i.e. insert detonators in explosive in advance.
- Load the charge immediately after inserting detonator in it.
- Insulating material (pointed wooden stick) should be used to make hole in dynamite for inserting detonator.
- After the detonator is fixed in the charge wrap the two or three rounds of leg-wire to charge and give a knot to avoid strain on detonator.
- When charge is loaded check the circuit with approved galvanometer, stand clear of hole while testing.
- The loading poles should be made of nonconducting material (wood) which could not get into static charge.
- Do not forcefully pull out the stuck charge from the hole. Drill a side hole nearby to the required depth and load it again. (when new loaded hole blasts there are strong chances that stuck charge in hole will also blasts). If the stuck charge hole does not blast, then blast it safely later on if possible.
- Ensure that charge does not float in the hole.
- When holes are loaded they shall be tamped by putting clay, mud etc. The pole used for tamping shall be made of non-conducting material (wood).
- The hole shall not be loaded until water has been used to "cool" the hole, or sufficient time has elapsed to allow the hole to cool down.

GUIDELINE 06
SHOT HOLE SHOOTING

- Before detonating any explosive, ensure the safety of employees, public, livestock, wildlife and the property. All shooters shall be trained, experienced and certified to handle explosives. Likewise, all members of the shooting crew shall be trained and experienced in the use of explosives. At least one copy of shooting procedures shall be available with the crew. There shall also be a First Aid Box available.
- Employees working especially in the surface shooting area shall wear following protective devices as:
  - Hard hats.
  - Leather gloves.
  - Ear plugs
  - Toe foot wear.
  - Face mask
  - Eye protection with side shields.
- The InCharge Shooter shall ensure that all members of the crew have been issued with, and wear proper Personal Protective Equipment (PPE). All personnel shall be familiar with the medical evacuation procedure.
- There shall be adequate communication between Shooter and Observers using Walki-Talki.
- Do not blast explosive near to any building, railway line, road, power lines and telephone lines. Avoid use of explosive nearby any installation which can be damaged.
- After loading charge in a hole, it shall be confirmed that loaded charge cannot be removed. This is usually done by tamping hole. The detonator wires shall be buried in ground to hide from unauthorized persons.
- For explosive/detonator testing, use the approved

equipment & techniques recommended by the explosive manufacturing authority.

- Devices/Tools under use for testing explosive shall be maintained in excellent working condition. If their efficiency becomes doubtful they shall be immediately replaced. The use of defective devices for testing explosives shall immediately be discontinued.
- Never use multimeter for checking continuity of detonator wires. Use good quality galvanometer.
- The Shooter shall be at safe distance, place and have control of shot point.
- The shot point shall clearly be visible to Shooter from his shooting position.
- The detonator leads and shooting line shall be shunted unless it is connected with blaster for shooting.
- Connections shall be carefully made, ensure the good insulation of wires.
- Use a series circuit of firing lines for the pattern holes.
- Blaster shall be capable of delivering excess current that required to detonate all the detonators.
- Blaster shall be regularly tested and ensured that it can deliver sufficient current to blast the explosive.
- Before a shot is fired a loud signal shall be given.
- Before shooting surface pattern ensure all the persons and vehicles are at safe distance.
- In case of misfire, all persons shall stay away from charge at least for half an hour. Circuit shall be checked carefully by expert supervisor before re-priming the charge.
- Shooting crew shall stand upwind to avoid breathing smoke, fumes and dust resulting from the shot. These may cause severe headaches and nausea.
- Always be aware of overhead fall out from rocked debris resulting from the shot.
- Be aware of delayed blow out up to five minutes

after the shot is fired.

- In a pattern shooting always use one wire to avoid confusion and mistake.
- The Shooter shall have complete control of shot and he shall be capable of aborting the shot at any time due to abnormal situation at shot location.
- No body shall enter the area of shot after blasting unless the Shooter gives permission.
- In case of misfire, following procedure shall be adopted :
  - All persons shall be kept away from the charge for at least one hour.
  - Firing line is checked, if it is broken, it shall be replaced.
  - Connection of detonators is checked. If any detonator is found dead, rest of the pattern shall be shot by drilling additional hole.
  - The misfired hole at a suitable distance (3 ft.) from the pattern hole shall be blasted while loading the explosive.
- All wires shall be picked-up and the Shooter shall ensure that the area is clean before moving to the next shot point.
- Communication between the Shooter, explosives crew, and all other members of the crew shall be established prior to detonation in order to eliminate any chance of any one entering the shot area. All crew members shall report the presence of any non-crew members seen in the operation area.
- Warning signs shall be posted on all roads and trails that lead to the shot area. The signs shall denote the use of explosives in that area. Use the local language on all signs and placards.
- Avoid pop shots as much as possible; however if necessary, bushes & grass near shallow depth holes must be removed before dynamite loading and to protect from flying rock stones, stay at a safe distance and wear PPE.

GUIDELINE 07
RECORDING OPERATIONS

- To prevent fires, the recording truck shall be parked in an area free of tall grass and bushes.
- In the event of an approaching lightening and thunder storm or poor weather conditions, stop all operations and disconnect cables from the recording truck. Personnel shall be instructed to move to a safe distance from any loaded holes or explosives.
- When laying out or picking up cable by vehicle, be aware of low limbs, bushes, low hanging wire and other hazards.
- Always wear leather gloves when handling cable. Always run cable hand over hand when re-spooling.
- Do not stretch a cable across a road or street. Do not hook cables on telephone or telegraph poles.
- Cable handlers feeding the cable in or out of the truck shall have the emergency horn button in close reach.
- When handling the cable manually, do not over load yourself. Never jump ditches, climb over, through or under fences while carrying a load.
- Use extreme caution when coiling the cable around the body. Serious injury will result if one end of the cable is snagged by a passing vehicle.
- Never sit or stand on a string of geophones. The spikes can cause a serious puncture.
- Do not jerk or pull excessively on geophone strings, it will either damage equipment or geophone will dislodge and hit someone causing possible injury.
- When a truck mounted recording operation is used, the exhaust system from the generator shall be checked periodically to ensure that exhaust fumes are not entering the recording cab. Propane and other heaters shall be properly vented.

- Where possible, cables crossing a road way shall be passed through the culvert. If a cable must cross the surface of a road, it shall be placed into a cable protector and secured to the surface of the road way with duct tape.
- Cables across heavily used highways shall be checked often to ensure that they have not become unanchored or untaped.
- Do not work on cables while traffic is crossing the cable.
- Whenever possible, avoid suspending cable over a road way. If the cable must be suspended, be sure it is sufficiently high to allow vehicles to pass underneath.
- Secure the cables firmly. Put up warning signs, and tie ribbons to the cable to make it more visible.
- While resting under the bushes or on grasses, check the area for snakes, scorpions, or harmful insects.
- Keep radio sets or walkie-talkies in good working conditions.

GUIDELINE 08
VIBROSEIS OPERATIONS

- Prior to start operations, ensure that machinery is in good working condition.
- Do not attempt repairs or maintenance while the hydraulic system is pressured up. Personnel, other than the operator, shall keep a safe distance when to pressure is up. When the system is pressurized, leaks, blow-outs, and ruptures can cause seriously disabling or fatal injuries.
- To prevent fires, vibrators should be parked in an area free of dry grass and bushes.
- Do not place any part of body under the pod.
- Do not leave the unit pressured up and unattended.
- Do not raise the vibrator to change tires or make repairs unless the axles are blocked.
- Be careful when walking or standing near a working vibrator. The vibrator works rapidly, and the operator's attention may not be directed ahead at all times. On slopes, the vibrator tends to slide or to vibrate slightly down slope, especially on mud.
- Use only "Dry" Nitrogen to charge accumulators. Be extremely careful that oxygen or compressed gases are not mistakenly used.
- Each compressed gas bottle must be clearly and legibly marked as to its contents.
- A vibrator normally has a high center of gravity, and good judgment shall be exercised when in rough terrain.
- Due to the size and configuration of these vehicles, special attention shall be given to stopping, following, warning, and overall speed. Follow other vehicles at a distance that you can stop safely in an emergency.
- Unauthorized persons are strictly prohibited
- Personnel and vehicles should kept away from vibrators at least safe distance of 50-60 meters to

avoid shaking effects.

- Avoid checking and monitoring of machines during vibroseis operations continuously by standing on ground/ earth.
- Do not use full force of 70kN to 80kN machines during vibroseis operations in soft formations. Peak force should be reduced or lowered down to safe recommended force or between 45kN to 55 kN.
- Hearing protection shall be provided when working close to an operating vibrator.

GUIDELINE 09
WHEEL-MOUNTED DRILLING RIG OPERATIONS

- Untrained workforce members shall not be allowed to operate the rig, unless under direct supervision.
- Do not attempt repairs, maintenance, or service while the machinery is running.
- All shafts, sprockets, and gears must be guarded. If guards are removed, replace them before the machinery is placed back into operation.
- Do not wear loose clothing around moving parts of the rig.
- Ensure area clearance before raising or lowering the mast, driller and other workers should be vigilant about overhead power lines or other hazards.
- Do not operate the mud pump until the intake and discharge valves are checked and opened. When blocked circulation stops the mud pump, relieve the pressure immediately by opening the wash hose valve.
- The mud pump shall have a proper pressure gauge and relief valve. The relief valve shall have guarded, and the blow pipe directed toward the ground. The mud lines shall be secured to the mast and to the drill.
- Inspect the hoses, chains and lines daily.
- Inspect and clean the slip tongs and wrenches frequently, and replace them before they are badly worn. Never hammer or sledge the tongs. Set the line brake and rotate the rod.
- Never hold or grab a drill bit by the blade.
- Never use the fingers to align the bit and stem.
- When an air drill is being used the air pressure shall be completely released before breaking any line or connection. Check the gauge. Do not use your hands to check an air stream.
- When pattern drilling, the rig can be moved short distances without lowering the mast, but only if the

shot points are on level ground, and there are no overhead obstructions.

- Use extreme caution when moving a rig with the mast up.
- In the event of an approaching thunderstorm, stop all operations, and lower the masts.
- The shot hole shall not be drilled closer than two times the hole depth from any power line, unless special precautions have been taken. Consider off-sets in order to meet this requirement.
- While air-drilling, adequate hearing and eye protection shall be used at all times.
- Drilling shall not be carried out on any point that has been previously shot or contained explosives.
- The mud pit, return ditch, and slump hole shall be filled in immediately after a shot hole has been loaded.
- All drilling crew members shall wear appropriate Personal Protection Equipment (PPE) such as safety shoes, gloves, hard hats etc.
- Never use loose clothes such as shalwar qameez, muffler and chadar.

GUIDELINE 10
PORTABLE RIGS (MP RIGS & FLUSHING UNITS)

- Portable rigs are manufactured in various models and sizes, and are used in heavy jungle, swamps, mountain, and flat land areas in which shallow holes are required.
- MP (man-portable) Rigs drill holes through air compressors whereas Flushing units drill holes through water.
- Manual handling procedures must be used when working through portable rigs.
- Following safety measures shall strictly adhere to:
  - No one shall operate the rig in training or practice unless under direct supervision.
  - The driller shall plan ahead for the job. Problems shall be discussed and a safe system agreed upon.
  - Do not wear loose clothing, rings, or jewelry, and tuck long hair and headgear.
  - The Driller and helpers shall wear properly fitted hard hats, safety shoes, coverall (uniform), gloves, and where appropriate, hearing and eye protection.
- The following equipment checks shall be made:
  - Daily maintenance check shall be performed and repairs carried out accordingly.
  - Pulleys, gears, sprockets, and other moving parts shall be guarded where practical.
  - Where guards are removed for maintenance, they shall be correctly replaced before putting the equipment back in use.
  - Pre-start check shall include guards, fuel lines, fuel tank and lids, spark plug wires, switches (for proper insulation), hoses and couplings, oil levels, and air filters. The engine stop switch operation shall checked as part of daily operation.
  - Post start-up check shall include throttle

operation, gauges, and hoses for hydraulic or air leaks.

- A dust deflector or rake shall be used. Never use your foot or hands to remove the dirt.
- Make sure the area around the drilling point is level and clear of obstructions. A platform shall be built for the portable rigs.
- Once drilling operations begins, all unauthorized persons be kept away from the rig.
- Drill stems can sometimes get damaged or "nicked" when working in rocky areas, and can cause serious injury to hands and fingers. Keep hands and feet away from rotating drill stems.
- Before moving the rig to a new location, always shut the engine off.
- Only approved containers for fuel can be used and shall be properly marked as to their contents.
- Fuel tanks shall be mounted away from hot parts of the engine or other ignition sources.
- Where fuel tanks are mounted on the rig, engines shall be switched off before refueling. Care should be taken to avoid spills.

GUIDELINE 11
SWAMP OPERATIONS/ RIVER CROSSINGS

Strict discipline shall be maintained in all aspects of operations in crossing rivers, working through areas covered with water. Following points shall be observed:

- All personnel using boats shall receive instructions on operations, including the use of safety equipment and man-over board drill.
- Toolbox Talks and pre job safety meetings shall be done about swamp/ river crossing operations and also about the use of safety equipment on boats.
- No boat movement is permitted after dark except in case of emergency or prior management's approval.
- Prior to start the work, plan for each river crossing and all members need to understand the plan.
- Never jump or dive into water - Do not swim across river or open water: Use extreme care if you have to cross a flooded river.
- Tested and recommended good quality life jackets according to weight capacity or buoyancy aids should be worn by all personnel on the boats and while working in open water.
- Avoid horseplay or cloning since it's a major cause of boat accidents. Stay seated and be vigilant when the boat is moving.
- Never wade across a river that is fast flowing and deeper than waist-deep, or has debris floating in it.
- Do not over load boats: Distribute weight of passengers.
- Only use good conditioned pully to roll cable.
- Avoid cable spreading through river and use laser link technology.

GUIDELINE 12
TRAVEL SAFETY PLAN

The following requirements for safe vehicle operation shall be strictly adhered to by all drivers of the crew.

- Keep yourself physically fit and mentally alert.
- Be familiar with local traffic regulations.
- Check steering gear, tires, brakes, lights, wind shield wipers and horn.
- Drive at a speed consistent with the condition of the road surface, the traffic density and the degree of visibility.
  - The maximum speed limit for pick-ups on open surface roads in dry conditions shall not exceed 80 KPH and shall not exceed 60 KPH in wet conditions. The maximum speed permitted in town area is 50 KPH. Speeds shall be reduced considerably for populated and urban area and bad surfaced roads.
  - The speed limit for heavy vehicles on open surface roads will not exceed 55 KPH in dry conditions and 45 KPH in wet conditions. The maximum speed permitted in town areas is 30 KPH. Speeds are to be reduced considerably for populated, urban areas and un-surfaced roads.
- The use of seat belts shall be obligatory in a company vehicle. Driver and passengers shall fasten their seat belts before the vehicle moves.
- Do not over load vehicles. Carry only the number of passengers that are provided with seats having functional seat belts.
- Give proper signals before making right or left turn, slowing down or stopping.
- Do not drive while under the influence of drugs with serene effects.
- Do not attempt to reverse the big vehicles unless someone directs you to do so by walking around your vehicle to make sure nothing is in your way.
- Approach all curves cautiously.

- When driving at night, the following safety precautions shall be observed:
  - Check all lights regularly to see that they are properly adjusted, have clean lenses and that all lights operate.
  - Drive your vehicle at a speed consistent with its braking ability and the degree of visibility.
  - Reduce speed when bright lights hamper vision.
  - Pass on coming vehicles with your low-beam headlights on.
- Take your turn in traffic, do not crowd other vehicles.
- Do not weave from one lane to another.
- Allow pedestrians to cross ahead of your vehicle.
- Never apply your brakes suddenly when you have a flat tire or blowout. Take your foot off the accelerator and apply the brakes cautiously.
- Obey every traffic sign and signal.
- All seating shall be securely fixed. Passengers shall be seated while traveling.
- Transportation of non-authorized and non-company personnel is prohibited.
- Driver shall give right of way to on-coming vehicles.
- Driver shall report mechanical failures immediately as detected.
- The fan belt, water pump, radiator and radiator hoses shall be checked frequently.
- Daily Pre-departure Checks for the Driver:
  - Check all oil and lubricants level.
  - Check all water levels.
  - Check spare wheels installed.
  - Check jack, wheel spanner and tools installed and operational.
  - Check fire extinguisher installed and secure.
  - Check seatbelts if operational/ undamaged.
  - Check lights, indicators and mirrors.
  - Check fuel tanks all time full.
  - Check tires.
  - Log out on journey management board.

- Check radio.
- Check drinking water.
- Check First Aid Kit.
- Walk Around vehicle.

- Take a short-break after every four (04) hours of continuous driving.

(Convoying)

- A pre-convoy meeting with convoy leaders and drivers shall be held to discuss the route, speed, resting places, road and traffic conditions.
- All drivers in the convoy shall maintain radio/ cellular phone communications.
- A Pick-up with flags, amber lights, and the slow-moving vehicle sign shall sail a slow-moving convoy.
- Large numbers of vehicle shall be split up into smaller sub-groups for each section of the journey.
- Detailed preparation shall be made of all items, and equipment carefully checked before starting out.
- Movement of all vehicles shall be properly organized to prevent them from getting lost.
- Convoy shall be equipped with "First Aid Kits" and Fire Fighting Equipment.
- Maintain a minimum distance of 100 meters (300 feet) between vehicles to permit traffic to move with ease around slow-moving vehicles. After the convoy has started moving, no vehicle should change position.
- After covering a large distance or congested traffic, the convoy should stop at a safe place as per plan.
- A mechanical support or service vehicle shall travel near the rear of the convoy.

(General Guidelines For Workshop)

- The mechanical workshop supports and maintains all aspects of equipment used in the operation through a set of general procedures for the safe operation of this area.

- The maintenance activities shall be carried out only by the trained personnel.
- No un-authorized personnel shall be allowed in this area.
- Only personnel equipped with the requisite Personal Protection Equipment (PPE) shall be allowed to enter within the designated work area.
- Wear the following appropriate Personal Protection Equipment (PPE) at all times:
  - Coveralls, gloves (as required), steel toed boots.
  - Face shield when welding.
  - Goggles when grinding or using the oxy-acetylene torch.
  - Rubber gloves and goggles when handling chemicals and acids.
- Always clean and replace tools after use.
- Keep the workshop tidy, free from obstruction and the floor free from grease and oil.
- Weld only in designated areas and ensure adequate screening is used to shield other workers from the area.
- Never work in an isolated area alone or unattended.
- No smoking near fuel storage areas. Smoking shall only be allowed in safe, designated areas. But smoking shall be discouraged as a policy matter.
- Never leave electrical equipment lying around in the open or connected to a power source when not in use.
- Proper lifting equipment shall be used when moving heavy equipment.
- Lifting equipment shall be in good condition and checked regularly for defects.
- All waste (scrap metal, old parts, oils, cleaning rags etc.) shall be sorted to designated collection containers, to allow collection for controlled disposal. Never put oil solaced waste or cleaning range in receptacles containing paper, card board etc. where spontaneous combustion may occur.

- All parts shall be cleaned only in non-combustible cleaning agents.

(Traffic Accident Investigation)

- Where injuries have been reported the ambulance and doctor shall be dispatched.
- Whenever possible, following people shall be sent to investigate the accident:
  - A mechanic familiar with the vehicle involved.
  - A reliable interpreter.
- Reports of incidents and accidents shall be prepared immediately after the events have occurred. Use the information in the reports to communicate with employees about incidents and accidents.
- Following items shall be taken with:
  - Safety vests-enough for all personnel at the scene to wear.
  - At least two flags for controlling traffic.
  - Pin flags and survey tape to mark out areas.
  - A survey chain.
  - Chalk.
  - A camera.
  - A good first aid kit.
  - Plastic bags for dealing with spills or collecting debris.
  - A shovel for dealing with spills.
  - A fire extinguisher.
- Before the investigation starts on site, the area to be investigated shall be secured to prevent further accidents by other road users.
- Flag men and warning material shall be positioned as first step. They shall remain in position until the wreck is removed to a safe place and the on sit investigation completed.
- No smoking shall be allowed in the area and batteries shall be disconnected.
- Special attention shall be paid by the investigators

to the following:

- The investigation shall be started by visiting the site and recording all specific physical evidences. This shall involve making notes, drawing sketches or taking pictures.
- Conditions prevailing at the time such as weather, visibility and road conditions.
- Damage caused by the accident to crops or buildings.
- Any spills of fuel or similar substances that may damage the environment.
- All glasses and metals shall be collected and removed.

- The area of the accident shall be left as safe as possible.

GUIDELINE 13
HOUSEKEEPING

Loose tools and equipment scattered around the work area are the cause of many accidents and injuries. The area should be kept clean of oil spills excess or unnecessary tools and equipment with the following points:-

- Clean up spills promptly and properly.
- Place garbage and waste materials in appropriate containers.
- Walk ways, passages, and doorways should be kept clear of obstructions and free from mud and water.
- Provide recommended light intensities to all working areas.
- Look for hazards such as boards with nails, pieces of pipes, electrical wires, grease and oil, etc.
- All offices and workshops should be kept clean and clear of scrap.
- Manholes, open hatches and loose grating create tremendous hazards. Always keep openings covered or place guards or barriers around them.
- Secure/ store material or equipment neatly and in a place where they do not hinder operations.
- Dispose-off waste material in designated containers.
- Use soaps and cleaners provided for cleaning skin. Solvents should not be used.
- Avoid unnecessary contacts with hydrocarbons, chemicals and explosives.
- Change oil-soaked clothing. It may cause skin irritation and is a fire hazard.

GUIDELINE 14
SMOKING

- Smoking should be prohibited during operations and not allowed in offices, working areas, stores and public gatherings as well.
- 'No Smoking' signs should be posted in areas where smoking is prohibited.
- Smoking should be only permitted outside the restricted areas designated as 'Smoking Area" but should be discouraged as a policy.

GUIDELINE 15
HEALTH AND HYGIENE

The following guidelines must be complied with to maintain healthy and hygienic occupational environment among workforce:

(Catering & Hygiene)

- Dining tables should be covered with appropriate sheets.
- Floors, walls, and ceilings should be cleaned at least once a week.
- Food should be thawed in the refrigerators free of vermin.
- Water used for cooking should be of same standard as drinking.
- Food should be cooked in metal cooking pot which be immediately cleaned after every meal.
- The food once cooked should be kept hot at 63^0 Celsius or above.
- Dishes and eating utensils should be washed thoroughly with hot water containing detergents.
- Raw food should be kept separate from the cooked food.
- Food should be transported in a food container and not mixed with other goods.
- Food container should be cleaned immediately after being emptied.
- The food container should be marked 'Food Only'.
- The waste and spillage should be cleared immediately.
- Food should not be stored on the floor, but on suitable shelves.
- Detergents, soaps, insect killers and other chemical products should be stored in a separate area.
- Food handlers should have clean, short or netted hair and clean short finger nails, regular bathing habits and clean cloth wearing of closed shoes is mandatory (no sandal or slippers).

- Food handlers with skin, nose, throat problem or suffering from colds, diarrhoea or vomiting should report immediately to the medical Rep. and should not be allowed to handle food until clearance.
- Hands should be washed with soap after using the toilets or cleaning a spill, or even after smoking etc.

(Catering Crew Hygiene)

- Catering crew must be free of contagious diseases, cuts, sores, and colds when handling and preparing food.
- Kitchen staff should get examined often for their hygiene.
- Kitchen staff should wash their hands, properly scrubbing with soap and water, prior to handling of food, after handling uncooked food and using the toilet.
- Kitchen staff should keep their nails and hair short.
- Kitchen staff should report on duty in clean proper clothes (uniform, cook's cap,& hair nets.)
- Kitchen and dining facilities whether in tents or mobile units should have the same requirements for cleanliness and sanitation.

(Hygiene in Living Quarter)

- Floors should be kept clean and washed with disinfection at least once a day.
- Spills should be cleaned immediately.
- Bed rooms should be kept neat and clean.
- Bed sheets and pillow cases should be changed at least one a week.
- Hand-wash should be provided at each wash basin to avoid multiple contacts.
- Towels should be installed in the vicinity of the wash basins. Liquid hand wash should be provided for washing hands at communal places to avoid multiple contacts and spread of vectors.

GUIDELINE 16
INSTRUCTIONS FOR HANDLING OF FUELS, OILS AND CHEMICALS

Fuels, oils and chemicals warrant special care for their handling and storage. The following precautionary measures shall be taken in this regard:

- The fuel storage facility should be at 20 meters distance from the power generator area.
- The fuel storage and handling facility shall have adequate secondary containment arrangement in case of leakage or spillage.
- The fuel storage facility shall not be located near any water body.
- Proper firefighting equipment shall be made available near the fuel storage.
- The fuel storage shall be down wind and down slope from the camp.
- The fuel storage area shall not have any other combustible or explosive material.
- Regular inspection shall be carried out to check leaks and spills.
- In case of multiple tanks connected together, isolation valves shall be installed.
- All fuel tanks shall be properly marked with their contents.
- Fuel transfer arrangements shall be protected against spills; drip trays shall be used.
- Equipment and material shall be available to clean up spills.
- Spills and leaks shall be thoroughly cleaned, spilled oil or fuel and used clean up material shall be disposed properly; all spills and leaks shall be reported and recorded.
- An Emergency Response Plan shall be available for spills and leaks.

GUIDELINE 17
INSTRUCTIONS FOR ENVIRONMENT CONSIDERATION

(Environmental Control Measures For Vehicles)

Following environmental control measures shall be employed for the vehicular operation and maintenance:

- Crawler (chained) vehicles shall not be used.
- Vehicles shall be maintained and inspected periodically.
- Oil fuel, acid or water leaks from the vehicles shall be immediately attended; Vehicles with leaks shall not be used.
- Recorder, vibrators, rigs, fuel and fuel carrying vehicles shall have fire extinguishers.
- Special care should be taken during vehicle fueling in order to avoid spillage.
- Vehicles shall not be washed or serviced in the field.
- No vehicle related waste, such as oils, old tires or parts shall be left lying around or disposed-off inappropriately; All combustible waste shall be incinerated, others items shall be sold to the contractors.
- All vehicles shall be in good working condition, properly tuned and not have excessive smoke emissions; Diesel-fueled vehicles shall have regular maintenance of their fuel-injection system for better fuel efficiency and minimum air pollution.
- All vehicles shall have properly functioning silencers (mufflers).

(Preparation of Seismic Survey Lines)

Following control measures should be adopted during seismic line preparation stage:

- Photographs shall be taken for the sensitive areas to record pre-survey conditions.
- Clearing of vegetation or cutting/falling of trees shall be minimized.

- If clearing or cutting of some vegetation or tree is unavoidable, it shall be carried out only after obtaining approval from the relevant department. Trees or bushes shall not be burnt or disposed in any water body or dry streamed.
- Grader or bulldozers shall not be used on priority to level the ground.
- The width of the line and the associated route shall be kept to a minimum.
- Wildlife Department shall be consulted before surveying in the wildlife sensitive areas.
- Appropriate distance shall be maintained from the animal water storage areas.
- Natural drainage shall not be disturbed, soil erosion shall be minimized.
- Periodic diversions shall be built where needed, in order to prevent damages to the roads.
- Stream (whether running or dry) crossing shall be carried out in a manner that does not damage its banks, in consultation with the Irrigation and Flood Department.
- Dry streams bed shall not be used for driving or walking along the line.

(Shot Holes and Recording)

Following disciplines shall be enforced with respect to environmental protection during the hole drilling, shooting and recording stages of the survey:

- No shooting shall be carried out in the environmentally sensitive areas, as identified by the Party Chief or Surveyor.
- The shooting schedule shall be prepared in consultation with Survey Section; certain lines shall have to be surveyed in sections; similarly, work shall not be carried out on some lines during certain seasons.
- The holes shall be drilled no deeper than required.
- The hole diameter shall be no larger than required.

- Vegetation shall not be disturbed.
- Wildlife habitats and their water holes shall not be damaged.
- The charges shall be set at the specified depth.
- The charge quantity shall be kept to a minimum, according to the requirement.
- It shall be ensured that all shots are fully fired; misfired shots shall be disabled according to the specified procedures.
- After recording, the shot points shall be cleaned and all flagging, survey stakes and debris shall be removed.
- No refuse or waste shall be left around; it shall be collected and sent to a designated place for proper disposal.

(Site Restoration)

Location Management must restore disturbed areas to approximately pre-existing conditions, subject to agreement with the landowner, DGPC and concerned EPA that desirable development features may be retained. Additionally, there shall be a clean-up crew as well to ensure the site is properly and adequately restored after the survey operation is completed. Specific Guidelines are as follows:

- The camping sites, routes, survey lines, etc. shall be restored as close as possible to the original condition; Photographs taken to record the pre-project conditions shall be used for this purpose.
- After drilling and loading the shot-hole, it should be backfilled with cuttings or other material.
- Trash, debris, pin flags, stakes, signs and refuse from seismic survey activities should be picked up/ removed.
- All concrete slabs shall be broken and disposed properly.
- Campsites should be left clean with no refuse or open sump left behind; Natural drainage of the

camp site and the survey line shall be restored if damaged during the seismic activities.

- Damaged stream banks shall be repaired and restored.
- All ditches and sumps shall be backfilled; Extra cap of soil shall be put on top to cater compaction.
- Re-vegetation measures shall be carried out where vegetation was disturbed or damaged.
- Erosion control measures shall be taken where needed.
- Contaminated soil shall be removed and disposed-off appropriately.
- Photographs shall be taken before and after the restoration measures at the camp sites, routes and lines for record purposes.

GUIDELINE 18
INSTRUCTIONS FOR OPEN AUCTION

While opting for an Open Action of critical items, Press Tender would be advertised as per company policy based on the a) the justification explicitly showing ineffectuality of the items and b) proper value determination of the items by a Committee. This would be mandatory for the following category of items:

- **Operational:** Weary assemblies and spares of engines, pumps, generators, pipes of different sizes, welding plants, rig mast structures, production tubing and other valued electrical and mechanical assets.
- **Support:** Unserviceable support vehicles including Ambulance, Dozers, Trailers, Bouzers, Fork Lifters, and Cranes.
- **Product related:** Used Chemicals/ Oil and Sludge collected from the separators/ pipelines/ tanks.

Note:- The above steps may generally be taken by/ through Material Management/ Stores Section.

ANNEXURE A
MINIMUM APPROACH DISTANCE

The closest distances an employee is permitted to approach an environmentally sensitive area or an energized or a grounded object in terms of safety are mentioned below:

From Environmental Perspective

Activity	Recommended Safe Distance
New access tracks	50m from all surface water sources; 100m from cultural sites (including graveyard and shrines); 100m from villages
Campsite	500m from communities, cultural sites (including graveyard and shrines) and surface water bodies
Soak pits (sanitary pits and biodegradable garbage pits)	300m from all surface/ground water sources
Burn pit	500m from communities
Installation of new tube wells	500m from existing wells
Up holes	30m from water wells; 50m from houses; 100m from canals; 50m from reptiles' hole; 50m from birds' nests
Exploration & production facilities should be installed	300m from protected areas; 200m from culturally sensitive sites
Drawing ground water from the wells or springs	At least 50m from sources of contamination.

From Safety Perspective

Activity	Recommended Safe Distance
Dynamite and detonators shall be carried separately in appropriate containers with a minimal safety distance	of 25 meters between both
The loader shall	25 meters on either side of the shot

ensure that dynamite and detonators are kept at a distance of	point to be loaded and are guarded at all times
There shall be no smoking, fire to open flame	at least 30 meters radius of use of explosive
Explosives other than charge being loaded shall be	at safe distance from holes at least about 30 meters
Fuel Storage Tanks shall be mounted separately	at 20 meters from the Store and Generator Area

Note: *The above list is not exhaustive/ final.*

ANNEXURE B
COLOR CODE FOR COVERALL AND HARD HAT/ SAFETY HELMET

Color of Coverall	Recommended Categories for Use
Grayish Blue	OGDCL Officers
Red	Firefighting Crew
Dark Blue	OGDCL staff members; laborers (other than Officers)
Not specified	Contractors shall comply as per their own company's policy

Color of Safety Helmet	Recommended Categories for Use (for working in PPE required areas)
White	OGDCL Officers (Location ICs, Sectional ICs, Engineers, etc.)
Yellow	OGDCL staff members; laborers (other than Officers)
Green	HSE Reps. (Engineers/ Officers)
Red	Firefighting Crew
Blue	Employees of Contractors / Sub-contractors working at site
Brown	Welders or workers taking up high heat or high voltage jobs
Grey	All types of Guests/ Visitors

Note:- *In addition to color coding, the selection of the helmets shall be made with the intention a) to reduce the force of impact of falling objects, b) to reduce the force of impact resulting from a blow which may be received off center or to the top of the head and c) to reduce the danger of contact with exposed high-voltage electrical conductors.*

ANNEXURE C

COLOR CODING FOR MAINTENANCE OF LIFTING GEARS

- Lifting equipment comprises lifting appliances (equipment performing the lifting), lifting accessories (devices that connect the load to the lifting appliance 'GEARS') and lifted equipment (e.g. containers, baskets, etc). All shall be marked with the Working Load Limit (WLL) and Safe Working Load (SWL).
- An equipment register, including maintenance records and evidence of certification to be available with Operator.
- Following are some of the items used as gears in lifting activities;

Wire rope slings	Chains and chain slings	Man-made fibre slings	Shackles
Beam- and Plate clamps	Eye bolts & swivel rings	Hoist rings	Turnbuckles
Wedge sockets	Lifting harnesses	Drill pipe elevators	Casing elevators
Bail arms	Spreader beams	Hooks	Load cells
Pad eyes and bolts	Rigging screw	Pallet hook	

- Color coding shall be an add-on for visual inspection and confirm the following aspects;
  a) an inspection has been carried out;
  b) whether or not inspection is current; and
  c) to determine the inspection results by being able to link back from the physical evidence to the records.
  d) Location ICs shall ensure that all portable, circulating & fixed lifting equipment and accessories for lifting, after thorough examination, are color coded to give visual indication of their certification and fitness status:-

Color Code	Period
Green	Lifting accessories, which have been inspected and found fit for purpose should be color-coded for a maximum six months.
Yellow	Lifting accessories, which inspection is due after lapse of 06 months shall be stored separately and clearly marked/ color coded and returned for re-inspection, certification and color coding.
Red	Crimson red color to denote equipment "unsuitable for the job" shall be applied. The crimson red color code shall also be used for discarded or rejected lifting gears that need to be kept in material storage for non-prescribed period of time.

ANNEXURE D

ASSURED GROUNDING COLOR CODES

- All cords and current carrying conductors used with the portable power tools shall be protected by either a Ground Fault Circuit Interrupter (GFCI) or an Assured Grounding Program.
- Following Assured Grounding Color Code Calendar shall be used (each new year):

January	February	March
April	May	June
July	August	September
October	November	December

Note:- The colors in the form of "taped bands" shall be pasted on the wire near the plug.

ANNEXURE E

LOCKOUT COLOR CODING

- Lockout and Tagout (LOTO) devices shall be singularly identified; shall be the only device(s) used for controlling energy; and shall not be used for other purposes.
- Tags shall not be required if locks are otherwise "indelibly" marked so as to identify the person(s) to whom the lock belongs.
- For each Section/ Department, Locks shall be unique-color-coded to assist in identifying users.

Note: *The authorized person applying a lock shall keep the key for that lock in his possession until the lock is removed. No employee should be able to open a lock attached by someone else.*

ANNEXURE F

COLOR CODING FOR WASTE DRUMS/CONTAINERS/BINS

Designated waste drums, containers, bins, etc with specific labels shall be placed as Collection Method for the Waste Generating Areas. Color coding of drums, containers, bins, etc. for various types of wastes is to be as follows:

Wastes Type	Bin Color
Hazardous	**Red**
Food/ Paper/ Wood (Organic)	**Green**
Plastic	**Yellow**

ANNEXURE G

COLOR CODING FOR WORK PERMITS

Following types of work permits shall generally be in use:-

Permit	Background Colour
Cold Work Permit	Blue Colour
Sour/Hot Work permit	Red Colour
Electrical Work Permit	Green Colour
Confined Space/Vessel Entry Work Permit	Grey Colour
Radiography Work Permit	Yellow Colour
Excavation & Civil Work Permit	Brown Colour
Working at Height Permit	Pink Colour
Vehicle Entry Permit	Purple Colour

ANNEXURE H

COLOR CODING FOR HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

The four bars shall be color-coded, using the modern color bar symbols and the number ratings as follows:

0 = Insignificant hazard;
1 = Slight hazard;
2 = Moderate hazard;
3 = High hazard; &
4 = Extreme hazard

Type of Hazard	HMIS Color Bar
Health	**Blue**
Flammability	**Red**
Physical Hazard	**Orange**
Personal Protection	**White**

Note: *The color bar is not for emergencies and is used to convey broader health warning information.*

ANNEXURE I

TYPES OF PERSONAL PROTECTIVE EQUIPMENT (PPE)

Category A: The Basic PPE shall include a) Coverall/ Dangri, b) Warm Jacket/ Leather Jacket, c) Safety Shoes, d) Safety Glasses, e) Hard Hat, f) Ear Muffs and g) Cotton Gloves.

Category B: The Specific PPE shall include a) Gloves (Leather, Chemical Resistant, and Latex), b) Face Shields (Welding Shields and Goggles), c) Flame Resistant Clothes, d) Long Safety Shoes, e) Gas Mask, f) Chemical Apron and f) Safety Harness.

Category C: The Emergency PPE shall include complete Turnout Gear / Fire Kit (Fire Suit), SCBA/30 min., Air-Purifying Respirator (APR), and Safety Vests / Clothing with Reflective Material designed for high nighttime visibility.

ANNEXURE J

NATIONAL ENVIRONMENTAL QUALITY STANDARDS (NEQS) (SELF MONITORING AND REPORTING BY INDUSTRY) RULES 2001, SRO 528(1)/2001

1. Quarterly basis, monitoring of Effluents for the given parameters and reporting to provincial EPA:

(i) Flow
(ii) pH = 6 – 9
(iii) Temperature Increase = < 3 C
(iv) BOD5 = 80 mg/l
(v) COD = 150 mg/l
(vi) TSS = 200 mg/l
(vii) TDS = 3500 mg/l
(viii) Oil/Grease = 10 mg/l
(ix) Phenol = 0.1 mg/l
(x) Chloride = 1000 mg/l

2. Quarterly basis, monitoring of Emissions for the given parameters and reporting to provincial EPA:

(i) CO = 800 mg/Nm3
(ii) Hydrogen Sulphide = 10 mg/Nm3
(iii) PM10 = 300 mg/Nm3
(iv) SOx = 400 mg/Nm3

(Based on one percent sulphur content in fuel oil.)

(v) NOx = 130 nanogram per joule of heat input

3. Annual basis, monitoring of Diesel Vehicle Exhausts:

(i) CO = 4.0 g/kWh [ECE R-49] for Trucks and Buses + Large good vehicles + Older Vehicles
(ii) HC = 1.1 g/kWh [ECE R-49] for Trucks and Buses
(iii) HC = 7.0 g/kWh [ECE R-49] for Large good vehicles and Older Vehicles
(iv) NOx = 7.0 g/kWh [ECE R-49 for Trucks and Buses
(v) NOx = 1.1 g/kWh [ECE R-49] for Large good vehicles and Older Vehicles
(vi) PM = 0.15 g/kWh [ECE R-49] for Trucks and Buses + Large good vehicles + Older Vehicles

4. Annual basis, monitoring ambient air quality (due to flare/ vent):

Sulphur Dioxide (SO_2)	Annual Average* = 80 ug/m^3 24 hours** = 120 ug/m^3	Ultraviolet Fluorescence method
Oxides of Nitrogen as (NO)	Annual Average* = 40 ug/m^3 24 hours** = 40 ug/m^3	Gas Phase Chemiluminescence
Oxides of Nitrogen as (NO_2)	Annual Average* = 40 ug/m^3 24 hours** = 80 ug/m^3	Gas Phase Chemiluminescence
O_3	1 hour = 180 ug/m^3	Non dispersive UV absorption method
Suspended Particulate Matter (SPM)	Annual Average* = 400ug/m^3 24 hours** = 550ug/m^3	High Volume Sampling, (Average flow rate not less than 1.1 m^3/minute)
Respirable Particulate Matter.PM_{10}	Annual Average* = 200ug/m^3 24 hours** = 250ug/m^3	B Ray absorption method
Respirable Particulate Matter. $PM_{2.5}$	Annual Average* = 25 ug/m^3 24 hours** = 40 ug/m^3	B Ray absorption Method
Lead (Pb)	Annual Average* = 1.5 ug/m^3 24 hours** = 2 ug/m^3	ASS Method after sampling using EPM 2000 or equivalent Filter Paper
Carbon Monoxide (CO)	8hours** = 5 mg/m^3 1 hour** = 10 mg/m^3	Non Dispersive Infra Red (NDIR) method

* Annual arithmetic mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval.
** 24 hourly /8 hourly values should be met 98% of the time in a year. 2% of the time, it may exceed but not on two consecutive days.

5. Quarterly basis, monitoring noise levels:

Noise –dB(A) Leq* 55 (Day Time); 45 (Night Time)	Residential Camp Area
Noise –dB(A) Leq* 75 (Day Time); 65 (Night Time)	Engine Hall, Plant Premises

1. Day time hours: 6.00 a.m to 10.00 p.m.
2. Night time hours: 10.00 p.m. to 6.00 a.m.
3. Silence zone: Zone which are declared as such by the competent authority. An area comprising not less than 100 meters around hospitals, educational institutions and courts.
4. Mixed categories of areas may be declared as one of the four above-mentioned categories by the competent authority.

*dB(A) Leq: Time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.

6. National Standards for Drinking Water Quality

#	Properties/ Parameters	Standard Values
Bacterial		
1.	All water intended for drinking (E.Coli or Thermotolerant Coliform bacteria)	Must not be detectable in any 100 ml sample
2.	Treated water entering the distribution system (E.Coli or thermotolerant coliform and total coliform bacteria)	Must not be detectable in any 100 ml sample
3.	Treated water in the distribution system (E.coli or thermotolerant coliform and total coliform baceria)	Must not be detectable in any 100 ml sample. In case of large supplies, where sufficient samples are examined, must not be present in 95% of the samples taken throughout any 12-month period.

Physical		
4.	Colour	≤ 15 TCU
5.	Taste	Non objectionable/ Acceptable
6.	Odour	Non objectionable/ Acceptable
7.	Turbidity	< 5 NTU
8.	Total Hardness as $CaCO_3$	< 500 mg/l
9.	TDS	< 1000
10.	pH	6.5-8.5
Radioactive		
11.	Alpha Emitters bq/L or pCi	0.1
12.	Beta emitters	1
Chemical		
	Essential Inorganics	*mg/Litre*
13.	Aluminum (Al) mg/l	≤0.2
14.	Antimony (Sb)	≤0.005
15.	Arsenic (As)	≤0.05
16.	Barium (Ba)	0.7
17.	Boron (B)	0.3
18.	Cadmium (Cd)	0.01
19.	Chloride (Cl)	<250
20.	Chromium (Cr)	≤0.05
21.	Copper (Cu)	2
Toxic		
	Toxic Inorganics	*mg/Litre*
22.	Cyanide (CN)	≤0.05
23.	Fluoride (F)*	≤1.5
24.	Lead (Pb)	≤0.05
25.	Manganese (Mn)	≤0.5
26.	Mercury (Hg)	≤0.001
27.	Nickel (Ni)	≤0.02
28.	Nitrate (NO3)*	≤50
29.	Nitrite (NO2)*	≤3
30.	Selenium (Se)	0.01
31.	Residual chlorine	0.2 – 0.5 at consumer end 0.5-1.5 at source
32.	Zinc (Zn)	5.0

7. Light Intensity

To assess whether lighting is sufficient in workplace, following light intensity ranges are used. Employees should understand the effects of lighting on their health and safety. In particular, they need to understand visual fatigue: its causes, prevention, symptoms, and recovery techniques.

Task/ Area	Range of Luminance (Lux)
Emergency lighting (at floor or tread levels) in exits, exit routes, stairs, and underground walkways	At least 10 (on average)
Simple visual tasks e.g. lobby area; washrooms; loading into trucks	30 – 100
Medium visual tasks e.g. bookkeeping; filing; material receiving and packing areas	300 – 1000
More visually demanding tasks e.g. QC/ inspection; proofreading; workshops/ machine work	3000 – 10000

ANNEXURE K
EMERGENCIES LEVELS

Basic Level Emergency	It is an emergency state in which an incident occurs which may not cause the normal operations to be shutdown. There is no immediate potential threat to the safety of personnel, assets, environment, and operations. Emergency equipment available on site can control this type of emergency situation. For e.g. • An injury or illness without Lost Workday Injury (LWI); • Minor fire; • Minor spill; • Electrical shock; • Person becomes unconscious in confined space. **Note:** For Basic Level Emergency condition, there is no need to gather at muster point.
Level – 1 Emergency	It is an emergency state in which an incident or series of Incidents which may cause the normal operations / activities to be temporary suspended or shut down. This emergency results an immediate potential threat to the safety of personnel, assets, environment, and operations. This type of emergency can be control by Emergency Team Member. The following conditions define as Level-1Emergency (but not limited to): • An injury or illness which result Lost Workday Injury (LWI); • Moderate fire; • Moderate spill; • Small contained fire or explosion; • Electric shock/ electrocution; • Toxic/ H2S leakage; **Note:** Gather at respective muster point in case of Level-1 Emergency.

Level- 2 Emergency	An emergency state in which an incident or series of incident may result in serious injury/ fatality, significant fire/ explosion, major equipment damage, gas / oil release, loss of controlled substance to the environment for which external support services may be required. The following condition defines as Level-2 Emergency (but not limited to): • An injury or illness that may result in Lost Workday Injury (LWI) or poses a health threat to personnel; • Property or Equipment damaged due to the significant fire or explosion; • Excessive H_2S emission; • Major fire/ explosion; • Major chemical / oil spills; • Bomb threat; • Natural disaster **Note:** Rush outside the plant boundary through emergency exit gate in case of Level-2 Emergency.

IMPORTANT CONTACT NUMBERS

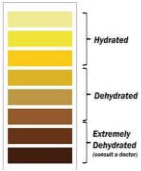
#	Designation	Contact #s		
		Office	Residence	Cell

Oil & Gas Development Company Ltd.

HSE INDUCTION FOR FIELD VISITORS

[to be placed or posted in every guest room]

1. Please note that the major hazards of this field/ location are of physical, chemical, and biological nature.
2. Therefore, visitors are expected to comply with all SAFETY/ ENVIRONMENT/ EMERGENCY signs and use of PPE where required.
3. In case of any emergency, inform Duty Officer by dialing 'xxx'.
4. Actions in the event of Fire or Fire Alarm:
   - If fire is detected, inform Duty officer.
   - If fire alarm sounds; Switch off any electrical/ gas appliance in use; Close doors/ windows.
   - Evacuate through the nearest Fire Exit and proceed to Muster Point.
   - Do not attempt to gather your personal belongings.
   - Do not go to the places other than the Muster Point.
   - Return to the office/ plant/ camp when allowed by Security Administrator.
5. Only use the designated areas for smoking.
6. Visitor's responsibilities towards Environment:
   - Do not litter; Use the designated waste bins.
   - Switch off the lights, fan, air conditioner, and heater when not needed.
   - Report any spark in the switch boards and water leakage in the toilets.
   - Do not use tap water for drinking.
7. Please avoid wearing open shoes or sandals while going out of the camp/ field area, since presence of snakes or poisonous insects cannot be ruled out. In case of snake/ insect bite, please call medical emergency at xxx. Necessary medicines are available at field.
8. Illegal drugs, weapons and explosives are prohibited within office/ plant/ camp premises.
9. While using toilets, you may consult the following Dehydration Chart to check your dehydration levels through urine color:



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